

Attorney Docket # 57694
PATENT APPLICATION

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Nobuhito UEDA, et al.

Appln. No.: 09/485,820

Confirmation No.: Not Yet Assigned

Group Art Unit: 1616

Filed: February 16, 2000

Examiner: N. LEVY

For: ENVELOPED PESTICIDAL FORMULATIONS

RESPONSE UNDER 37 C.F.R. § 1.111

Commissioner for Patents
Washington, D.C. 20231

Sir:

The Office Action of August 24, 2001 has been received and its contents carefully considered.

Claims 1, 7, 8, 11 and 12 have been rejected under 35 U.S.C. § 102(b) as anticipated by JP 5-85901.

Applicants submit that JP '901 does not disclose or render obvious the presently claimed invention and, accordingly, request withdrawal of this rejection.

The present invention, as set forth in claim 1, is directed to a solid pesticidal formulation enveloped in a water-soluble substance. The solid pesticidal formulation comprises at least one water soluble hydroxy compound selected from the group consisting of alkanols, ethylene glycol, propylene glycol, tri- or more valent alcohols, alcoholamines, lactic acid and hydroxy fatty acid esters. The solid pesticidal formulation is a formulation selected from wettable powders, water dispersible granules and water soluble formulations.

JP '901 discloses a pesticidal formulation for patty water application that is a solid composition containing a pesticidal active ingredient, carbonate, a water soluble solid acid, and a high boiling point solvent, enveloped by a water soluble film. Examples of the high boiling point solvent include "polyalcohol fatty acid esters". As set forth in the previous Response filed on July 25, 2001, a partial translation of JP'901 and, in particular, of paragraphs [0010] and [0011] of JP '901 is as follows:

(Translation of Paragraphs [0010] and [0011])

[0010] The high boiling point solvents used for the present invention can have a boiling point of 150°C or more, preferably 200°C or more. The high boiling point solvents used for the present invention are exemplified below.

[0011] Polybasic alcohol esters such as diisobutyl adipate, dioleoyl adipate, diethylhexyl phthalate, didecyl phthalate, 2-ethylhexyl trimellitate, triisodecyl trimellitate and so on; fatty acid alcohol esters such as cetyl 2-ethylhexanoate, coconut fatty acid cetyl ester, methyl laurate, methyl myristate, methyl oleate, octyl oleate and so on; polyvalent alcohol fatty acid esters such as sorbitan monolaurate, sorbitan monooleate and so on; higher alcohols such as octyl alcohol, lauryl alcohol and so on; aromatic hydrocarbons such as methylnaphthalene and so on; and ketones such as isophorone and so on can be used.

The Examiner apparently believes that the polyalcohol fatty acid ester of JP '901 is a "hydroxy fatty acid ester" of the present claims.

The hydroxy fatty acid ester of the present claims is an ester of a hydrocarboxylic acid, namely, it is a compound in which a hydroxy group exists on a carboxylic acid portion of the ester compound. In contrast, the polyalcohol fatty acid esters disclosed in JP '901 have a hydroxy group(s) on an alcohol portion of the ester compounds. Thus, the polyalcohol fatty acid esters of JP '901 are not the water soluble hydroxy compounds set forth in claim 1.

The Examiner states that he disagrees with applicants' argument that the fatty esters of JP '901 are not within the scope of the present claims. The Examiner states that the terminology employed in the present claims would cover the fatty esters of JP '901.

In paragraph [0011] of JP '901, the polyvalent alcohol fatty acid esters that are specifically disclosed are sorbitan monolaurate and sorbitan monooleate.

These two fatty acid esters are not soluble in water, as disclosed in the attached page from Hawley's Condensed Chemical Dictionary, 13th Edition (1997), which discloses that sorbitan fatty acid esters "are insoluble in water."

The Examiner further states that paragraph [0011] of JP '901 discloses octyl alcohol, which, according to the Examiner, is an alkanol within the scope of the present claims. Applicants disagree with this argument of the Examiner because higher alkanols, such as octyl alcohol, are not soluble in water. See the attached page from Hawley's Condensed Chemical Dictionary, 13th Edition (1997), which discloses that octyl alcohol is "immiscible with water."

The Examiner states that he would appreciate a copy of "the full translation" that applicants referred to in the previous Response. The Examiner states that this translation is not present in the file. The previous Response did not refer to a full translation of JP '901, and instead, at page 3 of the Response filed on July 25, 2001, referred to a "partial translation" of JP '901 "as follows", which partial translation was then set forth in the body of the Response. In any event, applicants enclose a full translation of the specification of JP '901.

In view of the above, applicants submit that JP '901 does not anticipate the presently claimed invention and, accordingly, request withdrawal of this rejection.

Claims 1, 7, 8, 11 and 12 have been rejected under 35 U.S.C. § 102(b) as anticipated by JP 5-78204.

Applicants submit that JP '204 does not disclose or render obvious the presently claimed invention and, accordingly, request withdrawal of this rejection.

JP '204 was discussed in detail in the Amendment Under 37 C.F.R. § 1.111 filed on January 30, 2001 and in the Response filed on July 25, 2001. Applicants rely on those discussions.

In the present Office Action, the Examiner states that the rejection of record is maintained because JP '204 discloses a solid pesticide enveloped in PVA, and that JP '204 discloses a "polyalcohol fatty acid ester" which satisfies the presently claimed enveloped formulation. The Examiner also states that sorbitan monolaurate is a trivalent alcohol, and is also a hydroxy fatty acid ester and an alkanol.

In response, applicants submit that the "polyalcohol fatty acid ester" disclosed in JP '204 does not satisfy the claimed water soluble hydroxy compounds set forth in claim 1. As discussed above, a polyalcohol fatty acid ester is not a hydroxy fatty acid ester of the presently claimed invention, and sorbitan monolaurate is not water soluble. See the above referred to attached page from Hawley's Condensed Chemical Dictionary.

In addition, the Examiner states that the trivalent alcohols that are recited in the present claims include sorbitan monolaurate. The trivalent alcohols that are recited in the present claims, however, have to be water soluble. As discussed above, sorbitan monolaurate is not water soluble and, therefore, assuming *arguendo* that it is proper to characterize sorbitan monolaurate as a trivalent alcohol, it is not a trivalent alcohol within the scope of the present claims.

Similarly, the Examiner states that sorbitan monolaurate is an alkanol. Again, the present claims require a water soluble alkanol. Thus, assuming arguendo that it is proper to characterize sorbitan monolaurate as an alkanol, it is not a water soluble Alkanol and, therefore, does not satisfy the recitations of the present claims.

In view of the above, applicants submit that JP '204 does not disclose or render obvious the presently claimed invention and, accordingly, request withdrawal of this rejection.

Claims 1, 3-5, 7, 8, 11 and 12 have been rejected under 35 U.S.C. § 102(e) as anticipated by Murakami et al in view of JP 08-19803.

Applicants submit that these references do not disclose or render obvious the presently claimed invention and, accordingly, request withdrawal of this rejection.

The Examiner states that Murakami et al disclose solid pesticidal formulations including solid pesticides at column 1, line 40 to column 2, line 30, and disclose ethylene glycol or glycerin at column 3, lines 38-44. The Examiner further states that the ethylene glycol or glycerin can be present in an amount up to 20%, as disclosed at column 5, lines 10-14. The Examiner states that the wall in Murakami et al includes PVA, as disclosed in Example 1 of Murakami et al.

The Examiner further states that the formulations of Murakami et al can be present in the powder form, as disclosed at column 4, line 60, for aqueous dispersion, but that Murakami et al do not specifically disclose that these formulations can be placed in a water soluble bag. The Examiner argues that it is well known to package pesticidal formulations in a water soluble bag,

as set forth in JP '803. The Examiner argues that it would have been obvious to employ the Murakami et al insecticide in a JP '803 container in order to safely handle the formulation.

In essence, the Examiner is stating that the powders formed by Murakami et al are a solid pesticidal formulation that contains at least one water soluble hydroxy compound, such as ethylene glycol or glycerin, and that it would have been obvious to place these powders in the water soluble packaging material of JP '803, which includes polyvinyl alcohol as a packaging material.

The Murakami et al patent discloses a pesticidal composition comprising microcapsules, with each microcapsule encapsulating a solid organophosphorus compound. The microcapsules include a microcapsule wall made of polyurethane. The polyurethane is made by polymerization of polyvalent isocyanate and polyhydric alcohol compounds. Murakami et al disclose, at column 3, lines 38-44, that the polyhydric alcohol compounds for use in the formulation of the polyurethane microcapsule walls include various alcohols, such as, ethylene glycol, glycerin, 1, 2, 6-hexanetriol and the like. Thus, the Examiner's reference to column 3, lines 38-44 for a teaching of the use of ethylene glycol or glycerin relates to the use of these materials to form the wall material, that is, the envelope material, and does not satisfy the recitations of the present claims that the solid pesticidal formulation comprises at least one water soluble hydroxy compound.

Further, Murakami et al disclose, at column 4, last paragraph, lines 58 to 62 that the microcapsules can be formulated into various forms, such as a suspension concentrate, dusts, wettable powders, and granules. This description in Murakami et al of powders and granules are

a mode of the microencapsulated pesticide. In contrast, the powders and granules in claim 1 of the present application are formulations to be enveloped. The substances in the microcapsules of Murakami et al are not wettable powders, water dispersible granules or water-soluble formulations.

Further, Murakami et al disclose that a suspension concentrate can be prepared by adding, if necessary, a stabilizer, such as a thickening agent, an anti-freezing agent, a preservative, a specific gravity-regulating agent, and the like, to a slurry obtained by the microcapsulation reaction based on an interfacial polymerization process. Murakami et al disclose, at column 5, lines 11-14, that the anti-freezing agent includes, for example, ethylene glycol, propylene glycol, glycerin and the like, which could be present in an amount of 0-20% by weight. Thus, the ethylene glycol, propylene glycol and glycerin referred to at column 5 are materials that are present in a slurry of the microcapsules, and are not a component of the solid pesticidal formulation. Thus, the disclosure at column 5, lines 11 to 14 does not satisfy the recitations of the present claims for at least one water soluble hydroxy compound in the solid pesticidal formulation.

Example 1 of Murakami et al discloses a process for making the microcapsule, including preparing an aqueous solution containing 8% by weight of polyvinyl alcohol (PVA) and 6% by weight of ethylene glycol. The polyvinyl alcohol and the ethylene glycol would be part of the wall material, and, thus, not part of the solid pesticidal formulation.

Thus, although the Examiner apparently believes that Murakami et al disclose PVA wall capsules, this is not correct. The capsule wall of Example 1 in Murakami et al is a polyurethane

capsule wall that is water insoluble. PVA or ethylene glycol is employed as one of the starting materials for preparing the polyurethane capsule wall. In contrast, in the present invention, the envelope is a water soluble substance. The polyurethane capsule wall of Example 1 of Murakami et al is not water soluble.

In summary, Murakami et al do not disclose or suggest a solid pesticidal formulation that comprises at least one water soluble hydroxy compound selected from the compounds set forth in claim 1, which is enveloped in a water soluble substance.

Applicants submit that the Examiner has only combines key words from the reference and has rejected the present claims based on those key words, without understanding the actual teachings of the reference.

(1) Murakami et al disclose microcapsule (MC) formulation in which the wall materials are water insoluble. See column 2, lines 40-48 of Murakami et al. On the other hand, a water soluble substance is utilized for envelopes in the present invention.

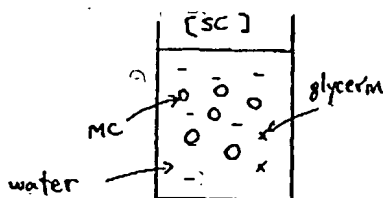
(2) The PVA (polyvinyl alcohol) in Example 1 of Murakami et al is a raw material for preparing a wall substance. The wall substance of Example 1 of Murakami et al is a urethane resin that is water insoluble.

(3) Further, the Examiner refers to glycerin in column 5 of Murakami et al. As discussed above, Murakami et al disclose at column 5 the use of an anti-freezing agent such as glycerin, for a liquid formulation. The Murakami et al microcapsules can be prepared in the form of a suspension concentrate (SC), dusts (DP), wettable powders (WP), granules (GR), etc. See column, 4 lines 58-67. As mentioned in column 4, line 64, the anti-freezing agent (e.g. glycerin) is used for liquid formulation, and the microcapsules are suspended in water. The

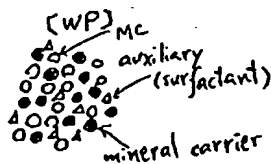
water contains the glycerin. The glycerin does not exist in the microcapsules. Of course, the glycerin in Murakami et al is used for preventing the freezing of the liquid formulation, and such disclosure does not suggest the present invention, which is a solid (envelope composition) and which contains the water soluble hydroxy compound (such as glycerin) in the solid pesticidal formulation.

(4) The WP and GR mentioned in column 4, lines 58-67 of Murakami et al refers to formulations containing the microcapsules. On the other hand, the WP (wetable powders) exists in the envelope in the present invention.

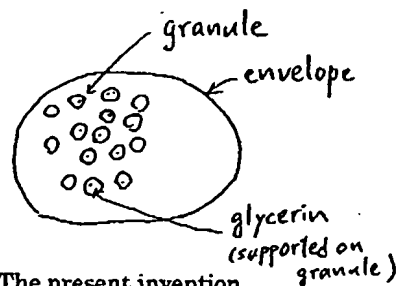
Applicants set forth below schematic representations of the suspension concentrate [SC] and wettable powders [WP] disclosed at column 4, lines 58 to 60, and a schematic representation of one embodiment of the present claims.



Disclosure of col.4, 1.58-60



Disclosure of col.4, 1.58-60



The present invention

JP A 8-19803 only shows package formulations. In view of the above shown schematic figures, it is clear that the disclosures of Murakami et al and JP '803 are very different from each other. Applicants submit that one of ordinary skill in the art would not be led to combining the teachings of these two references, and that there is not teaching or suggestion how such a combination could be made. Applicants submit that one could not easily combine the teachings. Further, even if such a combination were to be made, the resulting combination would not

produce the present invention, as can be seen from the above discussion, including points (1) to (4) above.

In view of the above, applicants submit that Murakami et al and JP '808 do not disclose or render obvious the presently claimed invention and, accordingly, request withdrawal of this rejection.

Claims 1, 3, 7, 8, 11 and 12 have been rejected under 35 U.S.C. § 102(e) as anticipated by to Levy.

Applicants submit that Levy does not disclose or render obvious the presently claimed invention and, accordingly, request withdrawal of this rejection.

The Examiner states that Levy discloses a water soluble PVA pouch at column 6, lines 28-36, which can contain powdered or granular pesticides.

The Examiner also refers to column 8, lines 65-68 for a disclosure of pesticides. The Examiner refers to column 9, lines 13-24 and 38-54, for a teaching that the pesticides are solids.

The Examiner states that the solids can be coated with water soluble alkanols and hydroxy fatty acid esters, as disclosed at column 10, lines 48-56. The Examiner also refers to column 14, lines 51-55 for a teaching of the use of various glycols.

In addition, the Examiner refers to (1) Examples 1, 2 and 10 of Levy, (2) the disclosures of Levy at column 15, lines 56-58 where there is a discussion of preferred organic alcohols that can be used to form organic esters, and (3) column 18, lines 7-12, where there is a discussion of a controlled release solid composition containing at least one coating agent, at least one bioactive

agent, and at least one carrier, with or without one or more binders and one or more formulating materials.

In addition, the Examiner refers to column 21, lines 44-47, where Levy states that additional formulation materials, such as water soluble or insoluble alcohols, such as 2-propanol, 2-ethyl hexanol and the like, can be utilized as admixture components in selected compositions.

The patent to Levy is directed to controlled delivery or controlled release composition and process for treating organisms in a column of water or on land. Levy discloses at column 6, lines 33-36 (and also at column 6, lines 15 to 24) that the controlled release compositions can be placed within a dispenser such as a water soluble polyvinyl alcohol pouch having a continuous outer wall that envelopes the compositions of the Levy

Levy discloses a wide variety of controlled release compositions, and describes a variety of components that can be present in a controlled release composition, but Levy nowhere discloses any examples of a solid pesticidal formulation enveloped in a water soluble substance, where the solid pesticidal formulation comprises at least one water soluble hydroxy compound selected from the compounds set forth in claim 1, and where the solid pesticidal formulation is a formulation selected from wettable powders, water dispersible granules and water soluble formulations.

Levy discloses, at numerous locations in the patent, the use of water soluble alcohols to prepare the pesticidal formulations. For example, at column 10, lines 62-64, Levy discloses the use of water soluble films of polyvinyl alcohol for coatings for a bioactive agent.

Applicants submit that polyvinyl alcohol is not a hydroxy compound that satisfies the recitations of claim 1 for a specified water soluble hydroxy compound of the present invention. Strictly speaking, it is a subtle question whether or not polyvinyl alcohol is a tri- or more valent alcohol. Polyvinyl alcohol is a hydrolysis compound of polyvinyl acetate. If polyvinyl acetate is perfectly hydrolyzed, the product will be tri- or more valent alcohols, namely, hydrocarbons having three or more hydroxy groups. However, actual polyvinyl alcohols are the products hydrolyzed 88 to 98% of polyvinyl acetate. See the previously submitted excerpt from Kirk-Othmer Concise Encyclopedia of Chemical Technology, (1985), pages 1228-1229, describing polyvinyl alcohol. Therefore, applicants submit that polyvinyl alcohol is not a water soluble hydroxy compound that satisfies the recitations of claim 1.

With respect to the Examiner's statement that Levy discloses hydroxy fatty acid esters at column 10, lines 42 to 56, the esters of citric acid and glycolic acid are hydroxy fatty esters, and some of them are water soluble hydroxy compounds. The hydroxy fatty esters disclosed at column 10, lines 42 to 56 are stated to be useful as coatings for the bioactive agents. Levy discloses a large number of coating agents.

With respect to the Examiner's reference to column 14, lines 51 to 55, this disclosure relates to the use of alkylene glycols and esters, such as polyethylene glycol and propylene glycol polymers as a coating material. The alkylene glycols may generally satisfy the recitations of claim 1. Levy does not contain any example of the use of such a material as a coating.

With respect to the Examiner's reference to column 15, lines 56 to 58, this disclosure relates to the use of organic alcohols to form organic acid esters as coatings. The resulting

organic acid esters are organic plasticizer compounds and, generally speaking, organic plasticizer compounds do not satisfy the recitations of a water soluble hydroxy compound selected from the specific compounds recited in claim 1.

With respect to the Examiner's reference to column 21, lines 44 to 47, this disclosure does not describe a specific formulation, and thus there is no disclosure of where these alcohols would be employed, and with what other components.

Further, the utility of the 2-propanol described in column 21, line 45 is not disclosed. But, acetone is described in column 21, line 46, and is used in Example 1 and volatilized as disclosed at column 22, line 26. It is natural that 2-propanol is also a solvent and eventually is volatilized the same as acetone. In such a case, the 2-propanol is not contained in the resulting composition.

With respect to the Examiner's reference to Examples 1, 2 and 10 of Levy, applicants do not see where these Examples disclose a product that satisfies the recitations of claim 1, since there is no disclosure in these Examples of a water soluble envelope that envelopes a solid pesticidal formulation containing a water soluble hydroxy compound.

With regard to the description of Examples 1, 2 and 10, applicants assume the Examiner believes that the ethyl citrate in Examples 1 and 2, and the polyvinyl alcohol film in Example 10 are the water soluble hydroxy compounds of claim 1.

Applicants submit, however, that the polyvinyl alcohol film in Example 10 is a coating material, and as discussed above, polyvinyl alcohol is not a hydroxy compound that satisfies the recitations of claim 1 for a specified water soluble hydroxy compound. Further, the ethyl citrate

in Examples 1 and 2 is also a coating material, see column 10, lines 34-53, especially line 45.

The active ingredient of Examples 1 and 2 is *Baccillus thuringiensis*, namely, a microbial insecticide, and it is generally used as a capsulated formulation (coating formulation).

The wettable powders, water dispersible granules and water soluble formulations in claim 1 are distinct from capsule formulations in the pesticidal formulation field. Levy discloses a polyvinyl alcohol pouch that envelopes a composition, where the composition may be a capsule formulation. On the other hand, the present invention provides enveloped wettable powders, water dispersible granules and water soluble formulations (water soluble powders and water soluble granules) and so it is novel.

In addition, Levy's hydroxy compounds are used for coating. Therefore, Levy does not suggest the present invention, in which wettable powders, water dispersible granules or water soluble formulations contain a specific hydroxy compound for stabilization and are enveloped.

Although the Examiner apparently believes that the ethyl citrate in Examples 1 and 2 of Levy is the hydroxy compound of the present invention, applicants point out that ethyl citrate is not a water soluble hydroxy compound of the present claims. According to the McGraw-Hill Dictionary of Scientific and Technical Terms (Fifth Edition) (a copy of a page of which is attached), "fatty acid" is defined as an "organic monobasic acid". Therefore, a hydroxyfatty acid ester of the present invention is an ester of a hydroxy-substituted organic monobasic acid with an alcohol, and does not include a hydroxytricarboxylic acid ester (ethyl citrate). Similarly, the cetyl alcohol of the Examples in Levy is not water soluble.

Thus, even if one of ordinary skill in the art were to place the powders of Examples 1 and 2 of Levy in a water-soluble envelope, one still would not arrive at the present invention because

RESPONSE UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/485,820

the powders of Example 1 and 2 of Levy do not contain a water soluble hydroxy compound as recited in the present claims.

Levy shows that ethyl citrate and cetyl alcohol, both of which are water insoluble, are coatings. See the Examples. Such coatings and/or pouches are used for controlled delivery compositions. Therefore, Levy may suggest that ethyl citrate or the like can be used for a coating material, but Levy does not disclose or suggest the addition of these components to wettable powders, water dispersible granules or water soluble formulations that are in the envelope of the present invention.


In view of the above, applicants submit that Levy does not disclose or render obvious the presently claimed invention and, accordingly, request withdrawal of this rejection.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Applicants hereby petition for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

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Respectfully submitted,


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